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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/063,786	05/13/2002	William D. Doan	121710	1626

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EXAMINER

WANG, JIN CHENG

ART UNIT	PAPER NUMBER
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2672

DATE MAILED: 03/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/063,786	Applicant(s) DOAN ET AL	
	Examiner Jin-Cheng Wang	Art Unit 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8,10-13 and 15-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8, 10-13, 15-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Applicant's submission filed on 2/28/2006 has been entered. Claims 1, 8 and 19 have been amended. Claims 7, 9, 14, and 20-31 have been canceled. Claims 1-6, 8, 10-13, 15-19 are pending in the present application.

Response to Arguments

Applicant's arguments filed February 28, 2006 have been fully considered but are not found persuasive in view of the new ground(s) of rejection set forth below.

As address below, the Claims 1 and 19 are unpatentable over Taguchi U.S. Pat. No. 6,584,166 (hereinafter Taguchi), in view of Argiro et al. U.S. Patent No. 5,986,662 (hereinafter Argiro).

Although Taguchi does not explicitly teach the claim limitation “said user display input comprises an instruction to save a current view of said reformatted axial image in a secondary capture image format”, Taguchi teaches rendering the 3D reconstructed/reformatted image in accordance with the user’s instruction, which is the same as saving the 3D reconstructed/reformatted images in accordance with the user’s instruction on the memory space of the display device or in the data storage unit 111 of the apparatus of Taguchi. Taguchi is also silent to “modifying a pixel intensity in response to a user render option input” and “an annotation level selection including at least three or more annotation levels.”

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Argiro explicitly teaches the claim limitation “said user display input comprises an instruction to save a current view of said reformatted axial image in a secondary capture image format”.

Argiro teaches in the Abstract and column 29, lines 1-35 that a report generator and viewer component generates a report based on snap shots of images taken within the examination viewer component. A print and post component posts the report as an HTML file to a web browser for retrieval over the Internet or an intranet wherein the images of the out are converted to PNG format for correct viewing within a web browser. Argiro discloses in column 25, lines 45-57 that the user has manipulated the controls and has determined that a particular view of the image should be saved for later analysis in which one embodiment permits the user to either save a snapshot of the image via selection of snapshot button 270 or record a video of the image as it is shown on the display device via selection of record button 278. Argiro discloses in column 26 **the report including selected snapshots along with formatting information regarding how the selected snapshots are to be organized**. Therefore, Argiro is seen to teach the claim limitation “said user display input comprises an instruction to save a current view of said reformatted axial image in a secondary capture image format”.

Argiro teaches the claim limitation of “modifying a pixel intensity in response to a user render option input. Argiro discloses in column 15, lines 1-25 and column 20, lines 20-55 the rendering options are available for modifying a pixel intensity.

Argiro teaches the claim limitation of “an annotation level selection including at least three or more annotation levels.” Argiro discloses in column 15, lines 1-25 a user interface selection for selecting the annotation levels including the arrow button, slider button and the text

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tool (other related annotation tool in the user interface selection include shading slider, label button, and cross hair button etc.). Argiro teaches in column 24, lines 15-65 the selection of the annotations including the selection of ruler button, the selection arrow button that allow the annotations to be placed on the image. Argiro also discloses in column 26, lines 14-28 at least another annotation tool including a text tool to permit the insertion of text into an image.

Therefore, Argiro discloses at least three different annotation levels that can be selected with the manipulation of the visual controls, i.e., the selection of the ruler button, the text tool and the arrow button.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated Argiro's teachings into the computer tomographic system of Taguchi which has a user interface including selections for reconstructing the image data for display in a display device and Argiro discloses other claim limitations set forth in the claim 1 and 19 as well, including modifying the slice thickness in response to a user slice thickness input (column 15, lines 1-25 and column 23, lines 20-35).

Taguchi's system displays a large number of images (See Figs. 13-14) and the images are stored in the data storage unit 111 for retrieval of each particular image through the user interface (e.g., Taguchi column 5, lines 23-58) and the reconstructed images are displayed on the display 116 of the volume data (column 5) wherein the slice or the 3D rendered image is saved to an HTML file according to Argiro. Both Argiro and Taguchi discloses volume data or reconstruction voxel and slices of the three-dimensional image (See Argiro column 22, lines 25-67 and Taguchi column 1, lines 44-65 and column 6, lines 1-5). It would have been obvious because rendering the 3D reconstructed/reformatted image in accordance with the user's

instruction as taught in Taguchi is the same as saving the 3D reconstructed/reformatted images in accordance with the user's instruction on the memory space of the display device or in the data storage unit 111 of the apparatus of Taguchi.

Such modification would have been required for saving a slice of the reconstructed image or the reconstructed images to a file or retrieving/storing the reconstructed image from/to the memory device (See Argiro column 29, lines 1-35 and Taguchi column 5, lines 48-58). One of the ordinary skill in the art would have incorporated Argiro's user interface options (including the annotation tools, the image gallery component and the examination viewer component) to permit the user to navigate through the different views of an image and to visually adjust the views through a set of tools (Argiro column 14, lines 33-54).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 8, 10-13, 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taguchi U.S. Pat. No. 6,584,166 (hereinafter Taguchi), in view of Argiro et al. U.S. Patent No. 5,986,662 (hereinafter Argiro).

Re Claims 1 and 19:

Taguchi teaches a method for managing axial images, the method comprising:

Receiving at least a portion of a reconstructed axial image, wherein said reconstructed axial image includes a pre-selected number of completed reconstructed slices, a slice thickness and an interval value (*e.g. Taguchi teaches a reconstruction unit which reconstructs image data on the basis of the real data and virtual data stored in a storage unit wherein the data having a pre-selected number of reconstructed slices, a slice thickness and an interval value and a graphical user interface for setting reconstruction conditions such as setting **slice thickness**, **slice pitch**, **the number of images**; column 5, 7-9 and Figs. 13-15*);

Creating a reformatted axial image in response to said portion of said reconstructed axial image (*Taguchi teaches in column 7 reconstructing at least two images with different slice thickness and interval values and selecting one of reconstructed axial images and rendering the reformatted axial image in a display. Taguchi teaches creating a reformatted axial image with the changed **slice thickness**, **slice pitch**, the radius R of the field of view, the effective width W of the field of view, and other parameters, in response to the reconstructed real data of the axial image or the virtual data created from the real data of the axial image; see column 5, 7-9 and Figs. 13-15; Taguchi further discloses in column 9 a resize selection by selecting the names of regions to be examined using pull-down menus for the sizes of small, medium and large images*), wherein said creating includes:

Modifying said slice thickness in response to user slice thickness input (*Modifying the slice thickness using the user interface. Taguchi teaches the number of images is automatically set in accordance with the **slice pitch** and **slice thickness** changes; column 9 and Figs. 13-15*);
and

Updating said interval value in response to user interval value input (*Taguchi teaches in column 8 changing the helical pitch and setting **slice pitch** which defines the distance between the center of each reformatted slice or the distance between the central lines of adjacent slices; column 9 and Figs. 13-15*);

Displaying said reformatted axial image in response to user display input (e.g., displaying a 3-D rendering image on the basis of the image data; see column 5, 8-9 and Figs. 13-15).

Although Taguchi does not explicitly teach the claim limitation “said user display input comprises an instruction to save a current view of said reformatted axial image in a secondary capture image format”, Taguchi teaches rendering the 3D reconstructed/reformatted image in accordance with the user’s instruction, which is the same as saving the 3D reconstructed/reformatted images in accordance with the user’s instruction on the memory space of the display device or in the data storage unit 111 of the apparatus of Taguchi. Taguchi is also silent to “modifying a pixel intensity in response to a user render option input” and “an annotation level selection including at least three or more annotation levels.”

Argiro explicitly teaches the claim limitation “said user display input comprises an instruction to save a current view of said reformatted axial image in a secondary capture image format”.

Argiro teaches in the Abstract and column 29, lines 1-35 that a report generator and viewer component generates a report based on snap shots of images taken within the examination viewer component. A print and post component posts the report as an HTML file to a web browser for retrieval over the Internet or an intranet wherein the images of the out are converted to PNG format for correct viewing within a web browser. Argiro discloses in column 25, lines

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45-57 that the user has manipulated the controls and has determined that a particular view of the image should be saved for later analysis in which one embodiment permits the user to either save a snapshot of the image via selection of snapshot button 270 or record a video of the image as it is shown on the display device via selection of record button 278. Argiro discloses in column 26 **the report including selected snapshots along with formatting information regarding how the selected snapshots are to be organized.** Therefore, Argiro is seen to teach the claim limitation “said user display input comprises an instruction to save a current view of said reformatted axial image in a secondary capture image format”.

Argiro teaches the claim limitation of “modifying a pixel intensity in response to a user render option input. Argiro discloses in column 15, lines 1-25 and column 20, lines 20-55 the rendering options are available for modifying a pixel intensity.

Argiro teaches the claim limitation of “an annotation level selection including at least three or more annotation levels.” Argiro discloses in column 15, lines 1-25 a user interface selection for selecting the annotation levels including the arrow button, slider button and the text tool (other related annotation tool in the user interface selection include shading slider, label button, and cross hair button etc.). Argiro teaches in column 24, lines 15-65 the selection of the annotations including the selection of ruler button, the selection arrow button that allow the annotations to be placed on the image. Argiro also discloses in column 26, lines 14-28 at least another annotation tool including a text tool to permit the insertion of text into an image. Therefore, Argiro discloses at least three different annotation levels that can be selected with the manipulation of the visual controls, i.e., the selection of the ruler button, the text tool and the arrow button.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated Argiro's teachings into the computer tomographic system of Taguchi which has a user interface including selections for reconstructing the image data for display in a display device and Argiro discloses other claim limitations set forth in the claim 1 and 19 as well, including modifying the slice thickness in response to a user slice thickness input (column 15, lines 1-25 and column 23, lines 20-35).

Taguchi's system displays a large number of images (See Figs. 13-14) and the images are stored in the data storage unit 111 for retrieval of each particular image through the user interface (e.g., Taguchi column 5, lines 23-58) and the reconstructed images are displayed on the display 116 of the volume data (column 5) wherein the slice or the 3D rendered image is saved to an HTML file according to Argiro. Both Argiro and Taguchi discloses volume data or reconstruction voxel and slices of the three-dimensional image (See Argiro column 22, lines 25-67 and Taguchi column 1, lines 44-65 and column 6, lines 1-5). It would have been obvious because rendering the 3D reconstructed/reformatted image in accordance with the user's instruction as taught in Taguchi is the same as saving the 3D reconstructed/reformatted images in accordance with the user's instruction on the memory space of the display device or in the data storage unit 111 of the apparatus of Taguchi.

Such modification would have been required for saving a slice of the reconstructed image or the reconstructed images to a file or retrieving/storing the reconstructed image from/to the memory device (See Argiro column 29, lines 1-35 and Taguchi column 5, lines 48-58). One of the ordinary skill in the art would have incorporated Argiro's user interface options (including the annotation tools, the image gallery component and the examination viewer component) to

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permit the user to navigate through the different views of an image and to visually adjust the views through a set of tools (Argiro column 14, lines 33-54).

Claim 2:

The claim 2 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of the user interval value input including an explicit value for the interval value. However, Taguchi further discloses the claim limitation of the user interval value input including an explicit value for the interval value (Figs. 13-15).

Claim 3:

The claim 3 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of the user slice thickness input including an explicit value for the slice thickness. However, Taguchi further discloses the claim limitation of the user slice thickness input including an explicit value for the slice thickness (Figs. 13-15).

Claim 4:

The claim 4 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of receiving at least one additional completed reconstructed slice and displaying the reformatted axial image in response to the user display input and to the additional completed reconstructed slice. However, Taguchi further discloses the claim limitation of receiving at least one additional completed reconstructed slice and displaying the reformatted axial image in response to the user display input and to the additional completed reconstructed slice (Figs. 13-15 and column 7-9).

Claim 5:

The claim 5 encompasses the same scope of invention as that of the claim 4 except additional claim limitation of receiving at least one additional completed reconstructed slice being performed in response to a user selecting a resume acquire button. However, Taguchi further discloses a button, which resume and acquire reconstructed slice (Figs. 13-15 and column 7-9).

Claim 6:

The claim 6 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of receiving, creating and displaying being performed in an interactive mode. However, Taguchi further discloses the claim limitation of receiving, creating and displaying being performed in an interactive mode (Figs. 13-15 and column 7-9).

Claim 8:

The claim 8 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of a navigation mode selection. However, Argiro further discloses a zoom option (Argiro column 14, lines 30-55).

Claim 10:

The claim 10 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of an image location selection. However, Taguchi further discloses selecting image location such as the center X, and Y coordinates (Figs. 13-15).

Claim 11:

The claim 11 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of a resize selection. However, Taguchi further discloses a resize

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selection by selecting the names of regions to be examined using pull-down menus for the sizes of small, medium and large images (column 9).

Claim 13:

The claim 13 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of saving the reformatted axial image in a reformat format. However, Taguchi further discloses saving the image data in the data storage unit (column 7-8).

Claims 15-16:

The claim 15 or 16 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of changing/setting slice thickness by a pre-selected value. However, Taguchi further discloses the claim limitation of changing/setting slice thickness by a pre-selected value (Figs. 13-15 and column 7-9).

Claims 17-18:

The claim 17 or 18 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of changing/setting interval value by a pre-selected value. However, Taguchi further discloses the claim limitation of changing/setting interval value by a pre-selected value (Figs. 13-15 and column 7-9).

Claim 12:

The claim 12 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of measurement selection.

Taguchi is silent to the claim limitation of the annotation and measurement selection.

However, Argiro teaches the claim limitation of the measurement selection (Argiro column 19-22 and 24 for annotation measurement with a ruler).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the annotation and measurement selection into the computer tomographic system having a user interface including selections for reconstructing the image data for display in a display device (Taguchi column 5-6 and Argiro the Abstract).

Such modification would have been required for additional functionality and thereby suggesting the obvious modification of Taguchi.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jin-Cheng Wang whose telephone number is (571) 272-7665. The examiner can normally be reached on 8:00 - 6:30 (Mon-Thu).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jcw



Kee M. Tung
Primary Examiner